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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,082	01/29/2004	Sang-Boh Yun	678-1283	4590

7590 02/06/2007
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EXAMINER

KHAN, IBRAHIM A

ART UNIT	PAPER NUMBER
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2617

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/767,082

Applicant(s)

YUN ET AL.

Examiner

Ibrahim A. Khan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements submitted on January 06, 2006, January 12, 2006, and August 07, 2006 have been considered by the Examiner and made of record in the application file.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 10-12, 15-25 are rejected under 35 U.S.C. 102(b) as being unpatentable over Philip et al. (WO 0005912)

Consider claim 1, 24 and 25, Philip discloses a wireless communication system for providing a service in a time division duplexing (TDD) mode and a frequency division duplexing (FDD) mode (*abstract, page 1 lines 34-36*), the system comprising:

a mobile station for, during call setup, transmitting a duplexing mode determination factor to a base station, setting a TDD mode or an FDD mode as a reverse mode set by the base station, and setting up a channel for the set reverse mode and a forward channel to perform communication (*see figures 1 and 8, page 9 line 36- page 10 line 7* where Philip discloses cellular phone determines the communication characteristics that it requires and based on those characteristics the base station sets a TDD or an FDD mode for communications) ; and

a base station for, during call setup, receiving the duplexing mode determination factor from the mobile station, setting a reverse mode to the TDD mode or the FDD mode using the received duplexing mode determination factor, and setting up a reverse channel for the set mode and a TDD mode for forward transmission to communicate with the mobile station (*see figures 1 and 8, page 9 line 36- page 10 line 7, lines 9-16, page 10 line 33- page 11 line 7* where Philip discloses cellular phone determines the communication characteristics that it requires and based on those characteristics the base station sets a TDD or an FDD mode for communications. Note that setting up the channels for communication on the reverse and forward link is inherent).

Further note that the components listed in claims 24 and 25 are inherent because the mobile phone and base station must have a coding processor for encoding and decoding TDD and FDD and a diplexer for separating a reception signal and radio processor and a transmission/reception separator and a finally a controller for controlling the mentioned

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elements. Without these components the base station and mobile station would not be operable in a micro and macro cell (*figures 2-5 for base station components see page 4 lines 25 – page 8 line 4, for cellular phone components see page 8 lines 10-30*).

Consider **claim 12**, Philip discloses a call control method in a base station for a wireless communication system, the base station being capable of communicating with a mobile station in a time division duplexing (TDD) mode and a frequency division duplexing (FDD) mode (*abstract, page 1 lines 34-36*), the method comprising the steps of:

during call assignment to the mobile station, analyzing a duplexing mode determination factor received from the mobile station to determine whether the mobile station is located in a close area with respect to the base station (*see figures 1 and 8, page 9 lines 26 –34, page 9 line 36- page 10 line 7, page 11 line 35- page 12 line 3, where Philip discloses during a call assignment to the base station determines position of mobile station from communication with the cellular phone*); and

assigning a TDD channel to a forward link and a reverse link if the mobile station is located in the close area, and assigning a TDD channel to the forward link and an FDD channel to the reverse link to perform communication if the mobile station is located in a remote area with respect to the base station (*see figures 1 and 8, page 9 lines 26 –34, page 9 line 36- page 10 line 7, page 11 line 35- page 12 line 3 where Philip discloses that the most appropriate duplexing scheme and the most appropriate macro or micro cell. Note that it is inherent that the FDD is used in macrocells and TDD used in microcells*)

Consider **claim 17**, Philip discloses a call control method in a mobile station for a mobile communication system providing a time division duplexing (TDD) mode and a frequency division duplexing (FDD) mode (*abstract, page 1 lines 34-36*), the method comprising the steps of:

generating a duplexing mode determination factor and reporting the generated duplexing mode determination factor to a base station when assignment of a call is necessary communication (*see figures 1 and 8, page 9 line 36- page 10 line 7* where Philip discloses cellular phone determines the communication characteristics that it requires and based on those characteristics the base station sets a TDD or an FDD mode for communications);

upon receiving a mode for a reverse link from the base station, setting transmission and reception modes based on the received mode (*see figures 1 and 8, page 9 lines 26-34, page 9 line 36- page 10 line 7, page 11 line 35- page 12 line 3*, note that if the base station sets a certain scheme to be used with a mobile station it is inherent that mobile phone will transmit and receive according to the modes set by the base station) ; and

sending a channel assignment request to the base station to perform communication with a channel assigned during channel assignment (*see figures 1 and 8, page 9 lines 26-34, page 9 line 36- page 10 line 7, page 11 line 35- page 12 line 3* Philip discloses cellular phone determines the communication characteristics that it requires and based on those characteristics the base station sets a TDD or an FDD mode for communications. Note that it is inherent that phones communicate over channels)

Consider **claim 2** and as applied to claim 1 above, Philip discloses that the mobile station generates the duplexing mode determination factor and reports the generated duplexing mode determination factor to the base station during predetermined periods in an active state (*see figures 1 and 8, page 9 line 36- page 10 line 7 and page 13 lines 5-105* where Philip discloses cellular phone determines the communication characteristics that it requires and based on those characteristics the base station sets a TDD or an FDD mode for communications throughout a period when the phone is in active state).

Consider **claim 3** and as applied to claim 1 above, Philip discloses that the base station determines whether switching of a reverse mode of the mobile station is required each time a duplexing mode determination factor is received from the mobile station in the active state, and controls switching of the set mode and assigns a new channel to the mobile station to perform communication when mode switching is required (*see figures 8, page 9 lines 26 –34, page 9 line 36- page 10 line 15*)

Consider **claims 4, 20 and 21** as applied to claim 1, 17 and 18 respectively, Philip discloses that the duplexing mode determination factor includes one of power of a pilot signal received from the base station or geographical position information of the mobile station (*see figures 8, page 9 lines 26 –34, page 9 line 36- page 10 line 15*)

Consider **claims 5, 22 and 23** and as applied to claims 1, 17 and 18 respectively, Philip discloses that the duplexing mode determination factor includes power of a pilot signal received

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from the base station and geographical position information of the mobile station (*see figures 8, page 9 lines 26–34, page 9 line 36- page 10 line 15*)

Consider **claims 6, 7 and 19** and as applied to claims 4, 5 and 18 respectively, Philip discloses that the duplexing mode determination factor is inherently transmitted over a dedicated control channel (DCCH) for the set mode (*see figures 8, page 9 lines 26–34, page 9 line 36- page 10 line 15* Note that DCCH are channels used for signaling between the network and the mobile so it would be apparent to send them over a DCCH.

Consider **claim 10 and 15** as applied to claim 9 and 14, Philip as modified by John disclose wherein channels for the forward link are assigned time slots beginning at a time slot in an area close to the guard time in order of mobile station nearest to the base station according to a position of the mobile station, detected from the duplexing mode determination factor (*see figures 1 and 8, page 9 line 36- page 10 line 7, lines 9–16, page 10 line 33- page 11 line 7*).

Consider **claim 11** and applied to claim 9, wherein channels for the reverse link for the TDD mode are assigned time slots beginning at a time slot in an area close to the guard time in order of mobile station nearest to the base station according to a position of the mobile station, detected from the duplexing mode determination factor *figures 6 and 7, page 9 line 36- page 10 line 7, lines 9–16, page 10 line 33- page 11 line 7*).

Consider **claim 16** and as applied to claim 12 above, Philip discloses upon receiving a duplexing mode determination factor from the mobile station during communication with the mobile station, checking again a position of the mobile station to determine whether the mobile station is located in the close area or the remote area; and determining whether mode switching is required according to the checked position of the mobile station, and assigning a mode switching message and a new channel to perform communication if mode switching is necessary (*see page 13 lines 5-10* where Philip discloses that allocation of a duplexing scheme occurs based upon the activity of a user within a user network. Note this includes roaming between a micro and macro cell).

Consider **claim 18** and as applied to claim 17 above, Philip discloses generating information obtained using the duplexing mode determination factor and reporting the generated information to the base station during predetermined periods during communication and if a reverse mode switching request is received from the base station and a new channel is assigned by the base station, performing mode switching and performing communication with the new channel (*see figures 8, page 9 lines 26-34, page 9 line 36- page 10 line 15*).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 8, 9, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Philip et al. (WO 0005912)** in view of **John et al. (GB 2398455)**.

Consider **claim 8** and **13** and as applied to claim 1 and 12 above, Philip discloses wherein the base station assigns a frequency resource in a predetermined area among frequency resources

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available in the base station as reverse link resource for reverse transmission, and assigns the remaining available frequency resources to a forward link and a reverse link in a TDD mode.

John discloses the base station assigns a frequency resource in a predetermined area among frequency resources available in the base station as reverse link resource for reverse transmission, and assigns the remaining available frequency resources to a forward link and a reverse link in a TDD mode (*see figure 2 and 3, page 4 lines 20 – 30, page 5 lines 21-29, page 6 line 26 –page 7 line 3*)

It would have been obvious to one of ordinary skill in the art to modify the teachings of Philip with the teachings of John to enhance the performance of a mobile station in a micro and macro cell by increasing uplink and downlink capacity (*abstract, page 7*)

Consider **claim 9** and **14** and as applied to claim 8 and 13 respectively, Philip as modified by John disclose wherein in the TDD mode, the forward link and the reverse link have a predetermined time period, and the period includes a guard time of a predetermined time between switching times of the forward link and the reverse link (*see figure 6 and 7, page 9 lines 22-25*).

Conclusion

5. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450

Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ibrahim A. Khan whose telephone number is (571) 270-1110. The Examiner can normally be reached on Monday-Friday from 8:00am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

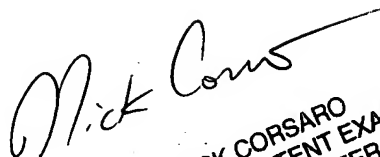
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

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Ibrahim A. Khan

I.A.K./iak

01/24/2007


NICK CORSARO
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